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Francis

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(54) **OLD WORK BOX DEVICE**

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G01B 3/1071	(2020.01)
G01V 3/08	(2006.01)
G01B 3/1084	(2020.01)

(52) **U.S. Cl.**

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(58) **Field of Classification Search**

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See application file for complete search history.

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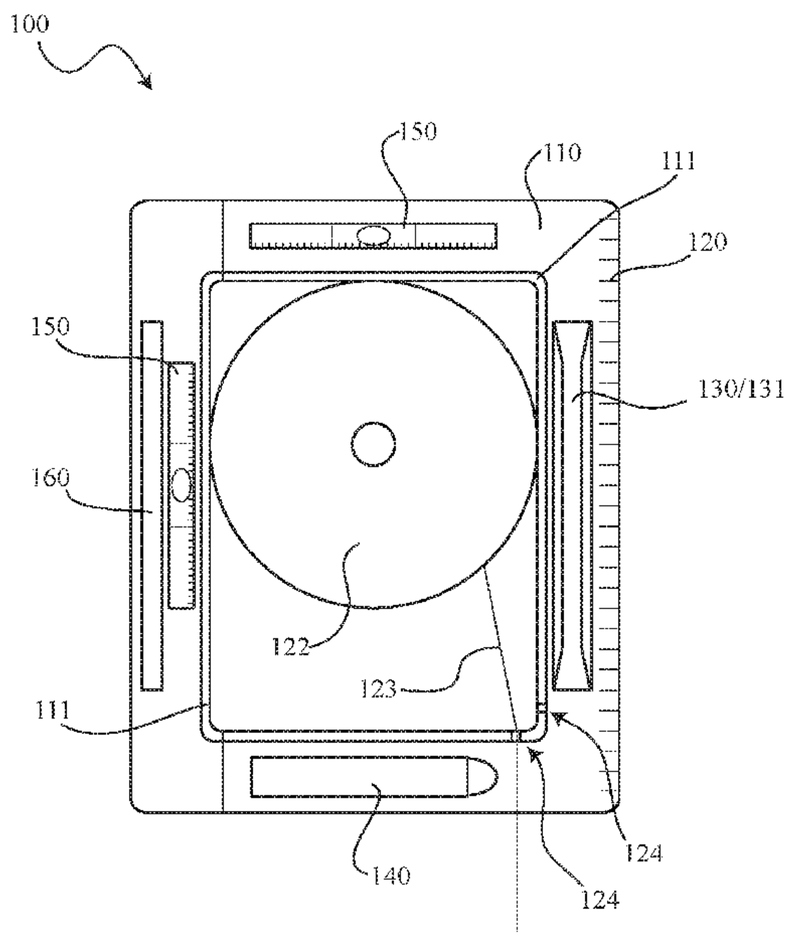
(57) **ABSTRACT**

An old work box device may be provided. The old work box device may include an adjustable device ring. Furthermore, the old work box device may have a measuring device affixed to the device ring, which may be capable of measuring a horizontal or vertical distance in relation to the device ring. A level may be provided on the device ring, which may be capable of leveling the device ring vertically or horizontally. A magnet or stud finder may be provided on the device ring, which may be capable of locating a stud for the installation of an old work box. The old work box may include a measurement scale along its perimeter and a marking device capable of marking desired locations a mounting surface.

8 Claims, 6 Drawing Sheets



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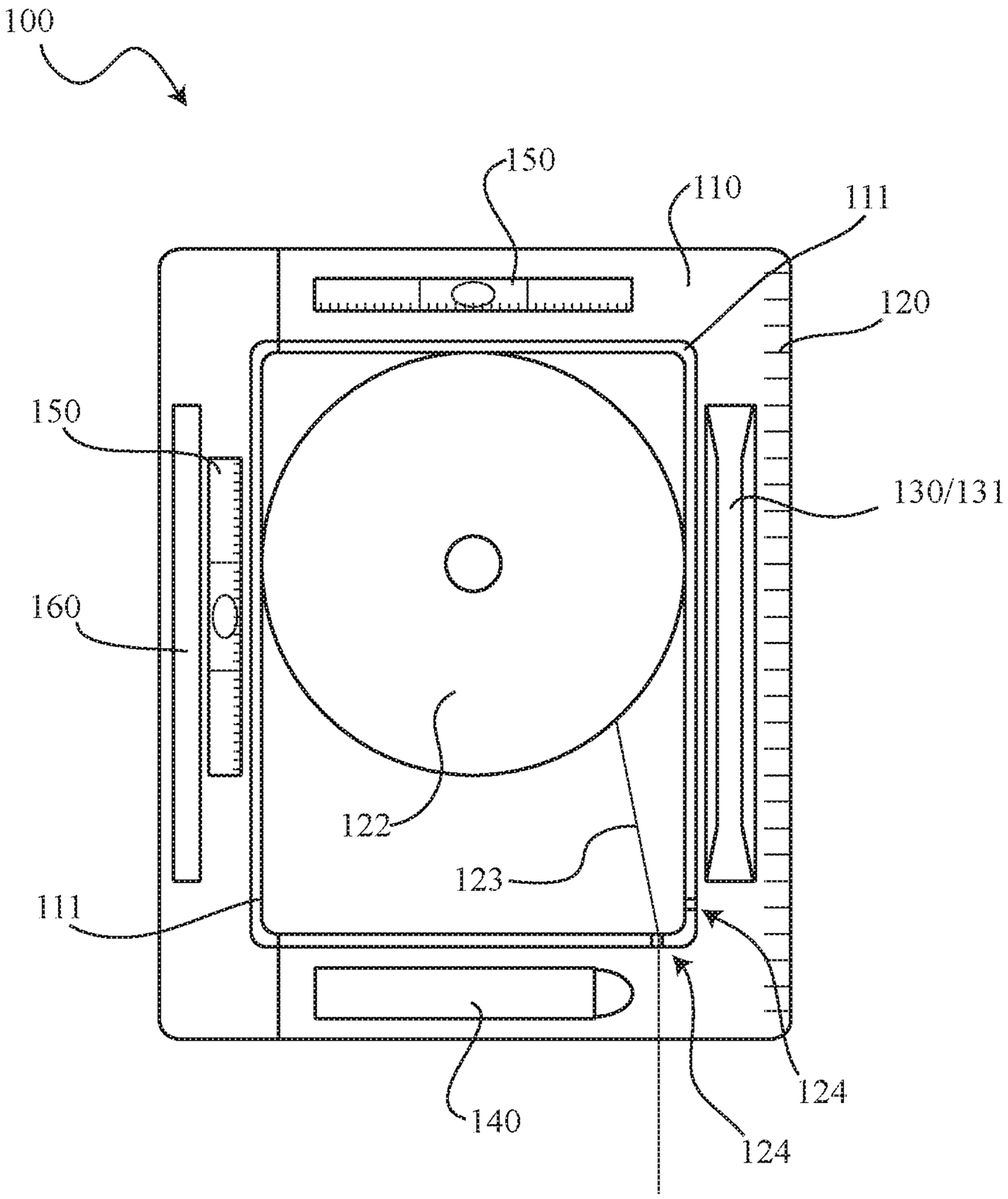

Fig. 1

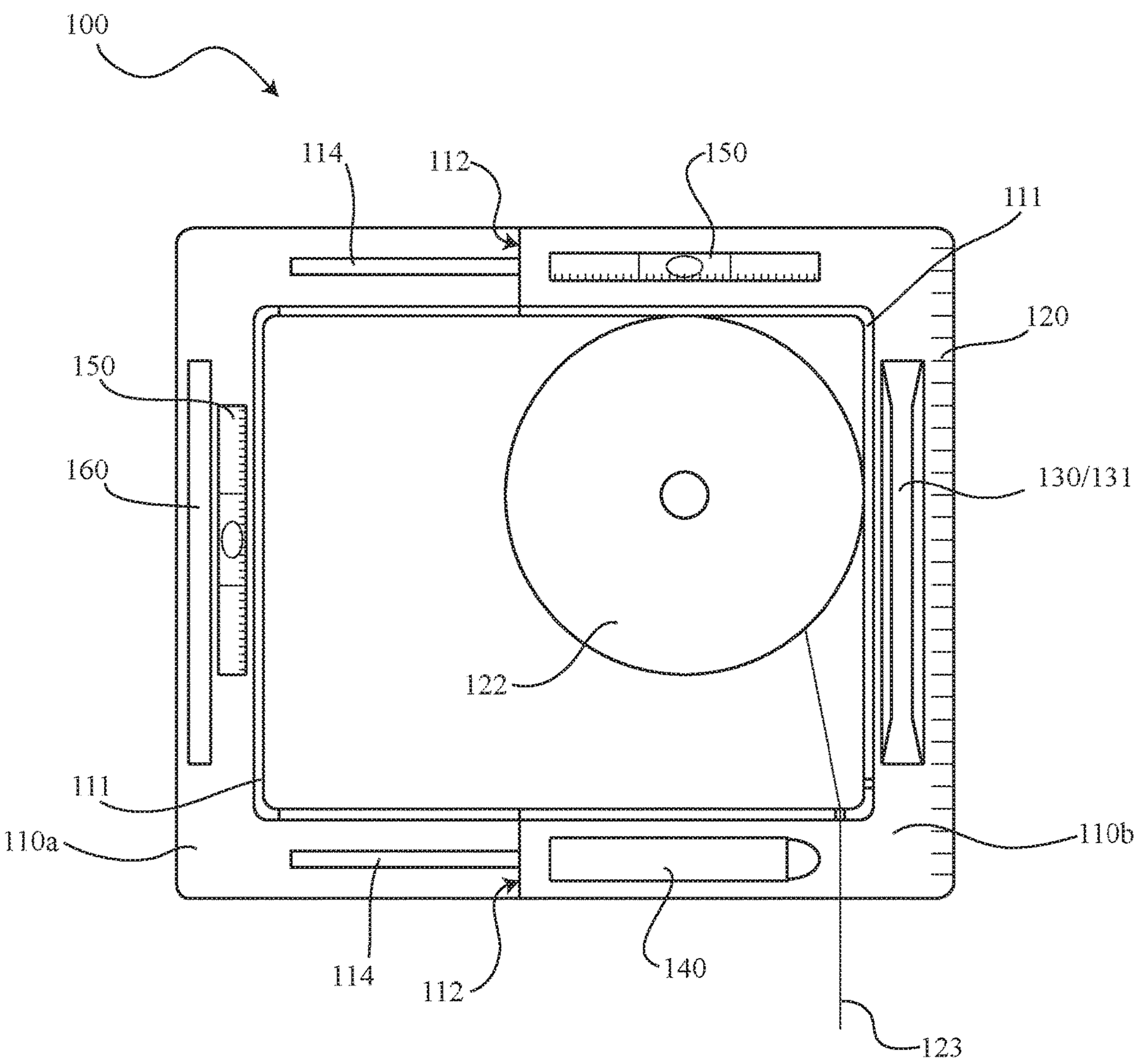
100
114
112
150
111
120
150
160
130/131
122
111
110a
110b
114
112
140
123

Fig. 2

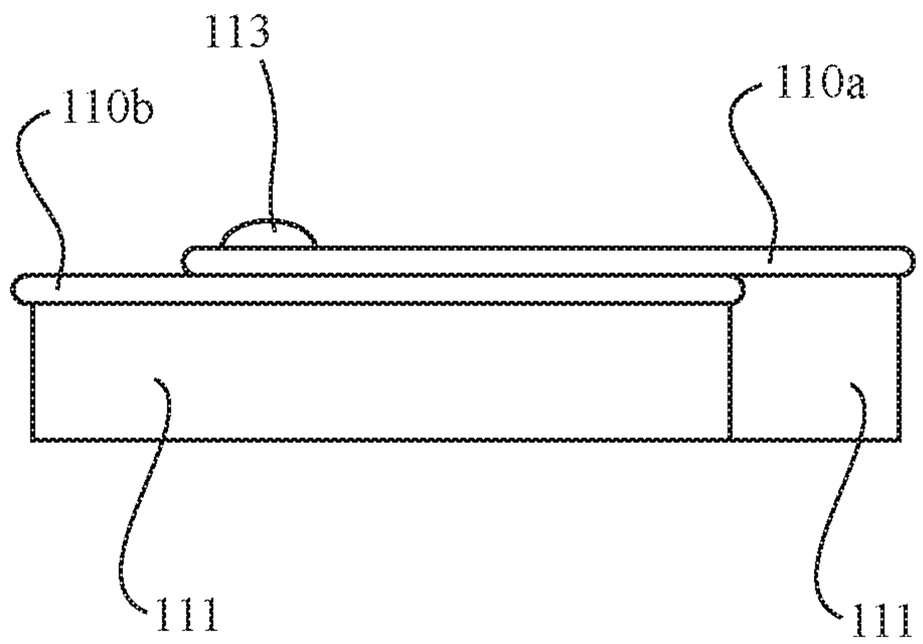

Fig. 3A

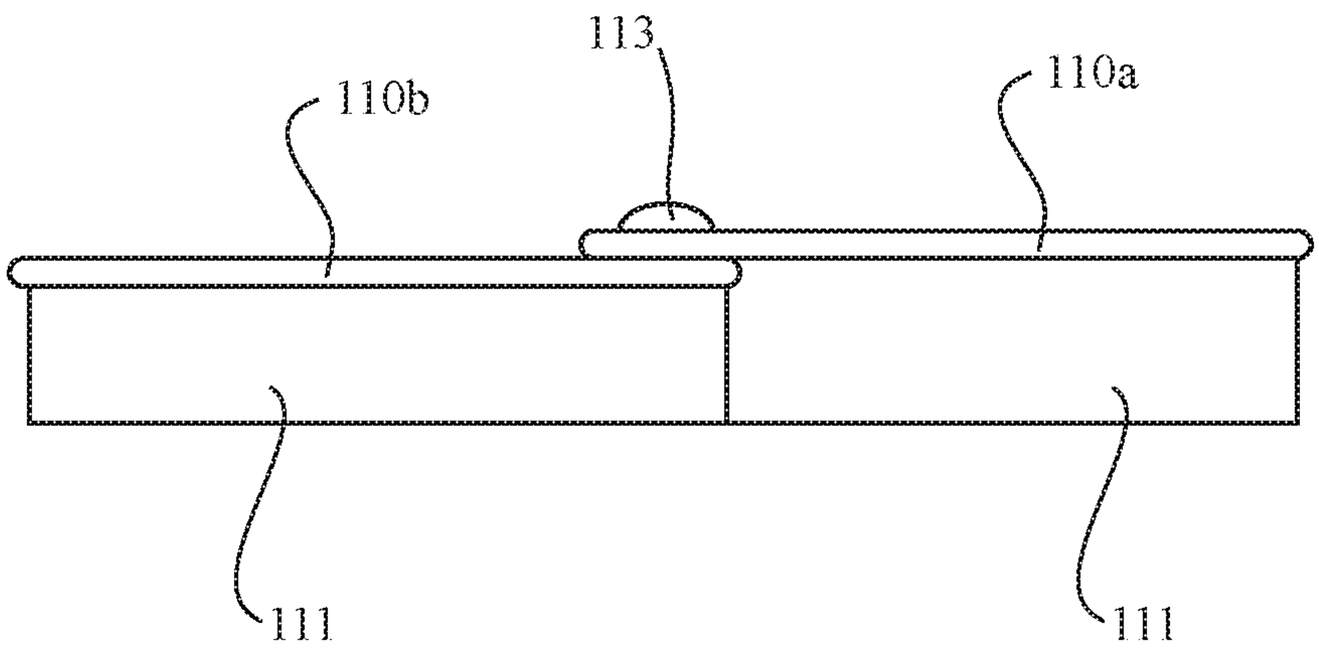

Fig. 3B

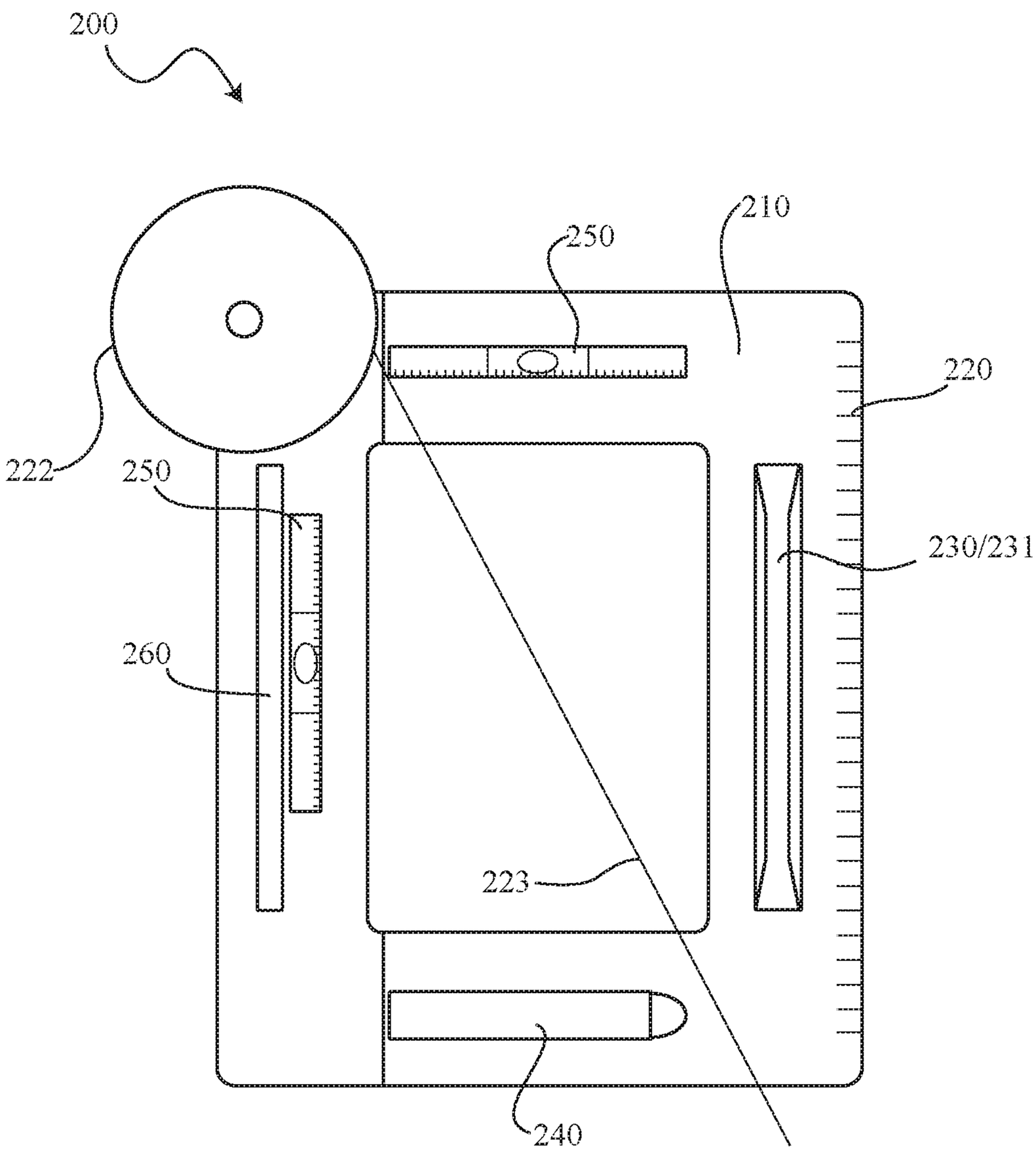

Fig. 4

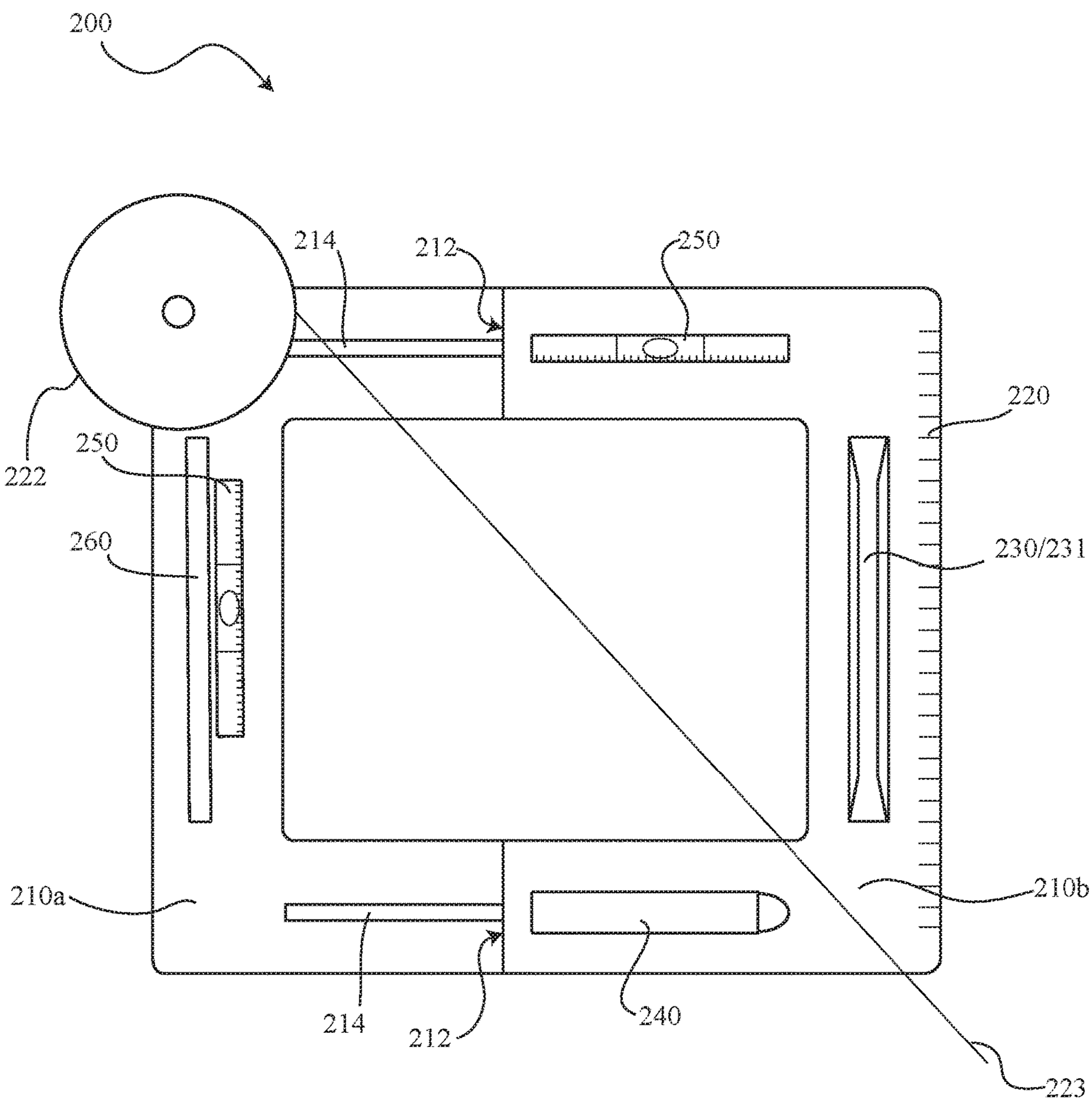
200
214
212
250
220
222
250
260
230/231
210a
210b
214
212
240
223

Fig. 5

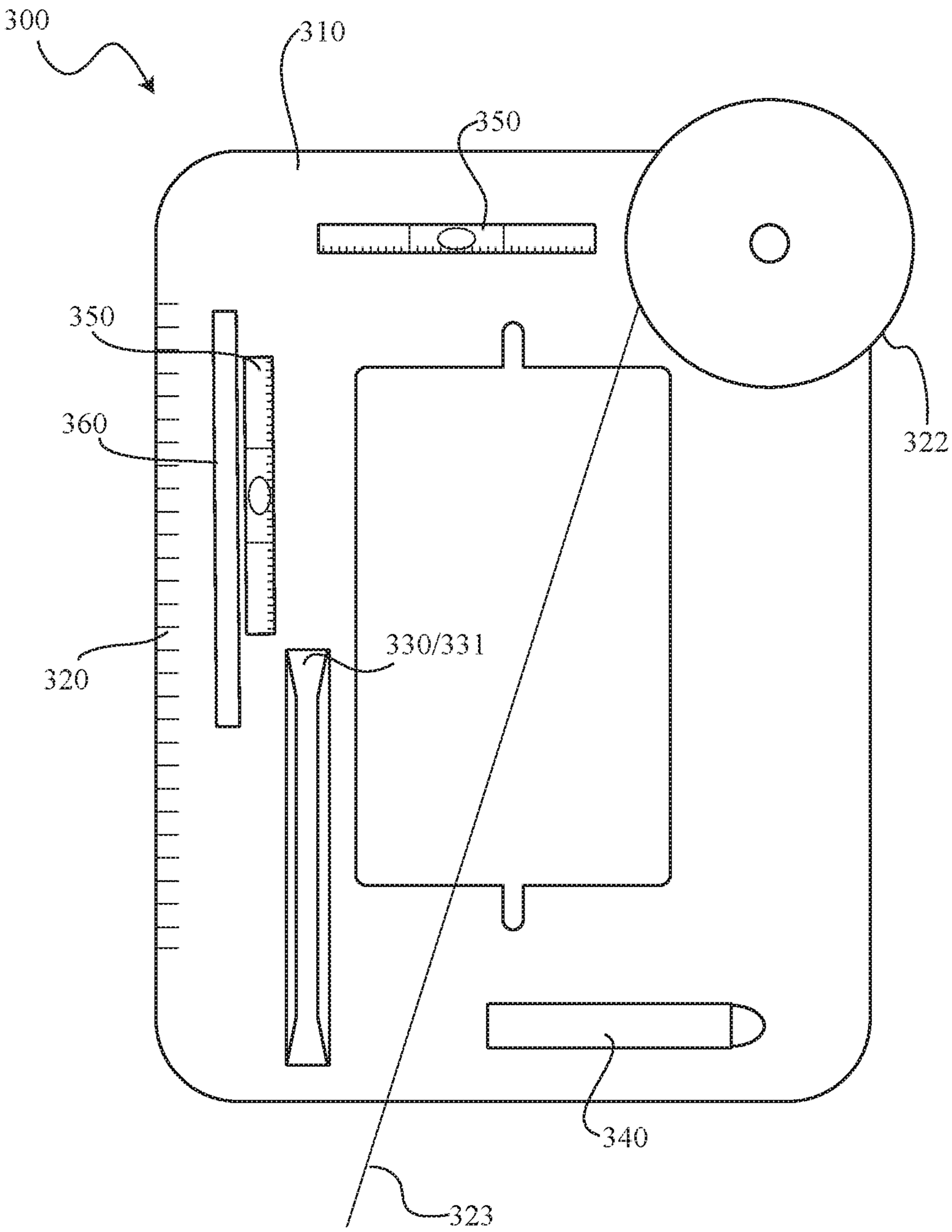

Fig. 6

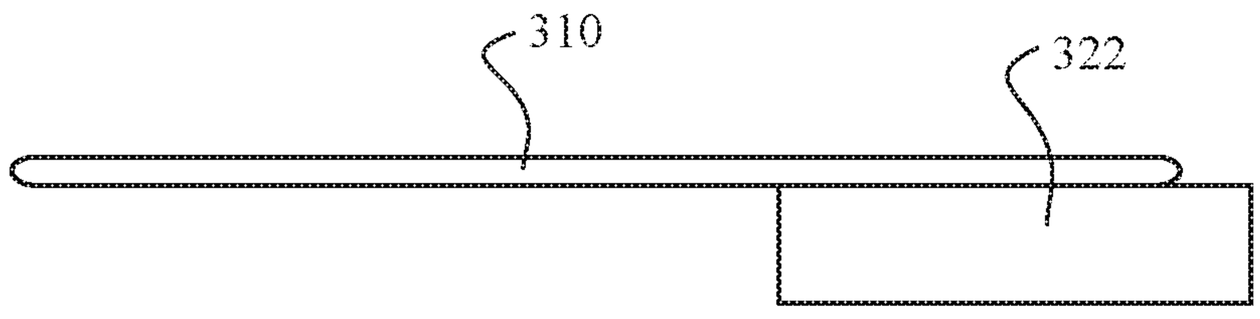

Fig. 7

OLD WORK BOX DEVICE

BACKGROUND

Electrical boxes, or junction boxes, are used to enclose wire connections. These boxes protect wire connections and can prevent short circuits. Electrical boxes can be installed as part of new installation or in existing structures. Whether mounting in new or existing structures, proper measurements must be taken to ensure correct mounting. This is particularly difficult in existing structures, where new holes often must be cut in an existing surface in order to install the electrical box. Old work boxes, or remodeling boxes, are electrical boxes that are designed for installation in existing walls or surfaces, such as hung dry-wall. It may be desirable to hang an old work box in a location where pre-existing wires have been fed, at a desired location in the wall, and/or adjacent to a stud. It therefore may be desirable to have a combination tool, which may facilitate the measuring, placement, and installation of an electrical box.

SUMMARY

An old work box device may be provided. The old work box device may have a device ring. At least one measurement marking may be disposed on a perimeter of the device ring. At least one level may be mounted on the device ring and at least one stud-finder may be mounted on the device ring. Lastly, at least one measuring tape or measuring laser may be provided on the old work box device.

BRIEF DESCRIPTION OF THE FIGURES

Advantages of embodiments of the present invention will be apparent from the following detailed description of the exemplary embodiments. The following detailed description should be considered in conjunction with the accompanying figures in which:

Exemplary FIG. **1** shows an embodiment of an old work box device;

Exemplary FIG. **2** shows an adjustable old work box device;

Exemplary FIG. **3**A shows a slidable connection for an expanding embodiment of an old work box device in a retracted position;

Exemplary FIG. **3**B shows a slidable connection for an expanding embodiment of an old work box device in an expanded position;

Exemplary FIG. **4** shows an embodiment of an old work box device;

Exemplary FIG. **5** shows an embodiment of an old work box device;

Exemplary FIG. **6** shows another embodiment of an old work box device; and

Exemplary FIG. **7** shows a side view of an old work box device.

DETAILED DESCRIPTION

Aspects of the invention are disclosed in the following description and related drawings directed to specific embodiments of the invention. Alternate embodiments may be devised without departing from the spirit or the scope of the invention. Additionally, well-known elements of exemplary embodiments of the invention will not be described in detail or will be omitted so as not to obscure the relevant details of the invention. Further, to facilitate an understanding of the description discussion of several terms used herein follows.

As used herein, the word "exemplary" means "serving as an example, instance or illustration." The embodiments described herein are not limiting, but rather are exemplary only. It should be understood that the described embodiments are not necessarily to be construed as preferred or advantageous over other embodiments. Moreover, the terms "embodiments of the invention", "embodiments" or "invention" do not require that all embodiments of the invention include the discussed feature, advantage or mode of operation.

According to at least one exemplary embodiment, an old work box device **100** may be provided. Old work box device **100** may facilitate the placement, installation and mounting of electrical boxes, including but not limited to old work boxes.

Referring to exemplary FIGS. **1-2**, an old work box device may include a device ring **110**, which may be a substantially rectangular frame having a hollow center. Traditionally, as would be understood by a person having ordinary skill in the art, device rings may affix to an open face of an electrical box and may facilitate the attachment of an electrical feature, such as a switch, for which the electrical box is placed. Device rings are often offset or raised in order to account for the thickness of drywall or other surfaces behind which an electrical box may be installed. Device ring **110** may be used as a base structure for an old work box device **100** and may optionally be offset or raised, as would be understood by a person having ordinary skill in the art. The raised wall **111** may assist with securing of accessory devices. Device ring **110** may be sized to match a desired electrical box, such as one gang, two gang, or adjustable between one or two gang. In some further exemplary embodiments, device ring **110** may be any desired size, such as, 3 gang, 4 gang, 5, gang, 6 gang, or adjustable among various sizes.

In adjustable embodiments, device ring **110** may have at least two pieces **110***a* and **110***b* (as shown in FIG. **2**) affixed in a sliding manner. Pieces **110***a* and **110***b* may be slidably connected along extension axis **112**, which may coincide with a front face of piece **110***b*, such that device ring **110** may expand in a direction transverse to axis **112**. As shown in the Figures, at least one track for slidably securing pieces **110***a* and **110***b* may be disposed in piece **110***a*. A securing piece **113** protruding from the back side of **110***b* may be disposed through track **114** and may be capable of sliding along track **114**, as would be understood by a person having ordinary skill in the art. When extended, raised wall **111** may have a break where extended. Alternatively, raised wall **111** of pieces **110***a* and **110***b* may be offset, such that they may slide in parallel, maintaining a raised wall around the perimeter.

In some alternative exemplary embodiments, one side, **110***a* or **110***b*, or a portion thereof may be secured in a track protruding from the other side, **110***a* or **110***b*, which may allow the sides to slide in relation to each other. In some further embodiments, device ring **110** may include at least one telescoping member for adjusting among sizes. In embodiments where device ring **110** is adjustable, device ring **110** may include at least one locking member for securing device ring **110** at a desired size. Device ring **110** may include a tensioning element, such that the sliding relationship of **110***a* and **110***b* is restricted or affected at predetermined points matching standard sizing for work boxes. It is noted that the dimensions of pieces **110***a* and

110*b* may not reflect actual dimensions or scale in exemplary FIGS. **2-3** for functionality as described herein, but may be understood by a person having ordinary skill in the art.

The adjustable pieces of device ring **110** may be capable of adjusting the width and/or height of the device ring. In some embodiments, a device ring **110** may have more than two adjustably connected pieces, which may allow for adjustment of the height and width of the device ring.

Device ring **110** may have at least one measurement scale or marking **120** disposed on its perimeter. Measurement marking **120** may facilitate marking, aligning, and measuring mounting locations and/or cuts in a mounting surface. Measurement marking **120** may be disposed on at least one of a vertical and horizontal perimeter. Furthermore, device **100** may include at least one marking hole or notch disposed in device ring **110**, which may provide for easy marking of standard reference points for mounting an old work box in a desired surface. Device **100** may have at least one measuring tool, which may include a measuring tape **122**, for facilitating the measuring of a mounting location on a mounting surface, including a mounting height or horizontal spacing. Measuring tape **122** may be secured to a face of device ring **110** and/or at least one face of raised wall **111**. In embodiments where device ring **110** is offset, tape **123** of measuring tape **122** may pass through a slit **124** disposed in device ring **110**. Device ring **110** may have multiple slits **124** for facilitating vertical and horizontal measurement. In some exemplary embodiments, other measurement devices may be utilized to supplement or replace the abovementioned, such as a laser measurement device **140**, which may be mounted on device **100**.

Device **100** may further include a mount **130** for mounting at least one marking utensil **131**. Marking utensil may include a pen, pencil, marker, or other marking utensil as would be understood by a person having ordinary skill in the art. Mount **130** may include a hook and loop type fastener, adhesive, a sleeve, snap fit, or other form of mount as would be understood by a person having ordinary skill in the art. Mount **130** may optionally be disposed on a surface of device ring **110**, such as a top surface, or a surface of raised wall **111**.

According to some exemplary embodiments, device **100** may have at least one level **150** mounted thereto or integrally formed therein, which may facilitate proper alignment when installing an old work box. In embodiments having multiple levels **150**, there may be at least one level **150** in a vertical orientation and at least one level **150** in a horizontal orientation. Levels **150** may optionally be disposed on a surface of device ring **110**, such as a top surface, or a surface of raised wall **111**.

Device **100** may further have a stud finder and/or a magnet **160** disposed thereon to assist with the location of studs or other desired materials, including wires, pipes or metal structures behind a mounting surface, in order to facilitate selecting a proper mounting location. In some embodiments, stud finder **160** may be mounted on device ring **110** or formed integrally therewith. Stud finder/magnet **160** may optionally be disposed on a surface of device ring **110**, such as a top surface, or a surface of raised wall **111**.

In some exemplary embodiments, device ring **110** may optionally be transparent, which may assist with aligning and measuring. As would be understood by a person having ordinary skill in the art, device **100** may similarly be used to facilitate placement and installation of a variety of electrical boxes, including handy boxes, junction boxes, new work boxes, old work boxes, outdoor boxes, junction boxes, standard rectangular boxes, square boxes, round or octagonal boxes, ceiling boxes, or other boxes as desired. In certain embodiments, device **100** may have a varied cross-sectional shape to match that of a desired box, including a round or octagonal box.

In operation, a user may select an appropriately sized device **100** or adjust the size of device **100** to match an electrical box to be installed. Next, the user may align device **100** on a mounting surface, such as drywall, at an approximate desired location. The user may then use the stud finder **160** to ensure a desired location in relation to a stud. The user may then use at least one of the measuring tape **122** or laser measurement device **140** to align the device at a more precise desired location. The user may further use the at least one level **150** to adjust the alignment. Throughout alignment and positioning of the device **100**, a user may utilize a marking utensil **131** and/or measurement markings **120** to mark desired installation points in relation to device ring **110**. Once the device ring **110** is positioned in a desired manner, the user may mark mounting reference points. Finally, the user may cut the mounting surface and install the desired electrical box at the desired location.

Now referring to exemplary FIGS. **4-5**, device **200** may be provided. Device **200** may have a substantially flat device ring **210**. The arrangement of measurement markings **220**, measuring tape **222/223**, stud finder **260**, the at least one level **250**, marking utensil **231** and utensil mount **230**, alternative measurement laser **240**, and/or any additional accessories as would be understood by a person having ordinary skill in the art may be situated on a front face of the substantially flat device ring **210**. In an exemplary embodiment, as shown in FIG. **4**, measuring tape **222** may be mounted on a surface of device ring **210** rather than within an interior void of device ring **210**. The flat device ring **210** shown in FIGS. **4-5** may be adjustable in size in perpendicular relation to an extension axis **212**. For example, sides **210***a* and **210***b* may be adjoined in a sliding manner using tracks **214**.

Now referring to exemplary FIGS. **6-7**, yet another old work box device **300** may be provided. Device **300** may have a device ring **310** that is substantially flat and fixed in size. Device **300** may similarly have measurement markings **320** on at least one edge, measuring tape **322/323** mounted on a surface of device ring **310**, at least one level **350**, a stud finder **360**, marking utensil **331** and utensil mount **330**, alternative measurement laser **340**, and/or any additional accessories as would be understood by a person having ordinary skill in the art.

The foregoing description and accompanying figures illustrate the principles, preferred embodiments and modes of operation of the invention. However, the invention should not be construed as being limited to the particular embodiments discussed above. Additional variations of the embodiments discussed above will be appreciated by those skilled in the art.

Therefore, the above-described embodiments should be regarded as illustrative rather than restrictive. Accordingly, it should be appreciated that variations to those embodiments can be made by those skilled in the art without departing from the scope of the invention as defined by the following claims.

What is claimed is:

1. An old work box device comprising:

a device ring;

at least one measurement marking disposed on a perimeter of the device ring;

at least one level mounted on the device ring;

at least one stud-finder mounted on the device ring; and

at least one of a measuring tape or measuring laser,

wherein the device ring is an offset device ring having a raised wall, and

wherein the measuring tape is secured to an interior surface of the raised wall of the offset device ring and a tape of the measuring tape is configured to pass through a slit in the raised wall of the device ring.

2. The old work box device of claim **1**, further comprising at least one mount for a marking utensil.

3. The old work box device of claim **1**, further comprising a vertical level and a horizontal level mounted on the device ring.

4. The old work box device of claim **1**, further comprising a measuring laser disposed in a vertical orientation and a measuring laser disposed in a horizontal orientation.

5. The old work box device of claim **1**, further comprising two slits in the raised wall of the device ring, wherein a first slit is configured to allow the measuring tape to extend in a vertical direction and a second slit is configured to allow the measuring tape to extend in a horizontal direction.

6. The old work box device of claim **1**, wherein the device ring is expandable.

7. The old work box device of claim **6**, wherein the device ring comprises at least two pieces slidably connected.

8. The old work box device of claim **7**, wherein the device ring comprises a first piece and a second piece and the first piece is configured to slide along a track disposed on the second piece.

* * * * *